

What Is Claimed Is

1. A flying head slider that is incorporated in a disk storage apparatus, which records and reproduces information to and from a disk-shaped storage medium, wherein

5 a face of said flying head slider, which faces said storage medium, comprises three types of surfaces, which are a positive pressure generating surface; a step that has a lower height than said positive pressure generating surface; and a recess that has a lower height than said step, wherein

10 said positive pressure generating surface comprises:

a U-shaped leading pad that comprises a projection on an air inflow side and is positioned at a front part of said slider;

15 two side pads that are positioned behind said leading pad and to the right and the left side; and

a center pad that comprises a recess on the air inflow side and is positioned between said two side pads and behind said leading pad;

said step comprises:

20 a leading step that extends from a front edge of said leading pad to a front edge of said slider;

two side steps that extend from the behind of said leading pad and to the right and the left and to connect to said two side pads, respectively; and

25 a center step that comprises a projection on the air inflow side and extends forward from a front edge of said center pad;

said recess is formed at the peripheries of said center pad and of said center step, which are surrounded by said leading  
30 pad and said side steps;

said side steps extend from side parts of said side pads

to the side edges of said slider; form a width of said leading pad narrower than a total width of said slider; said leading step and said side steps are joined at the side parts of the slider and extend to the side edges of said slider;

5           said side steps are wider at the rear;  
          the rear edge of said center pad are positioned further behind the rear edges of said side pads; and  
          a head is positioned near the rear edge of said center pad.

10

2.       The flying head slider of Claim 1, wherein said two side pads comprise projections on the air inflow side.

3.       The flying head slider of Claim 1, wherein  
15       said two side pads comprise recesses on the air inflow side.

4.       The flying head slider of Claim 1, wherein contour parts of said positive pressure generating surfaces, which can be on an air outflow side with a range of skew angles  
20       of use, are directly connect and fall to said recess, without said steps in between, except at areas, that can also be on the air inflow side and are connected to said side steps.

5.       The flying head slider of Claim 4, wherein  
25       the contour parts of said positive pressure generating surfaces are continuous and comprising only of curved lines and tangent of the curved lines at parts raised from said steps, and have discontinuous shapes at cross points between areas, where the contour parts are raised from said steps, and areas, where  
30       the contour parts are raised from said recess, and at cross points between areas where the contour parts are raised from

said steps and slider edge faces.

6. The flying head slider of Claim 1, wherein  
a shape of said leading pad is such that said leading pad is  
5 thickest at a center part and becomes gradually narrower toward  
both ends.

7. The flying head slider of Claim 1, wherein  
said positive pressure generating surfaces, said steps and  
10 said recess are symmetrical with respect to a center line of  
a longitudinal direction of said slider.

8. The flying head slider of Claim 1, wherein  
said leading pad is split into two parts in a width direction  
15 of said slider.

9. A disk storage apparatus comprising a disk shaped  
recording medium and a flying head slider having a head, which  
records and reproduces information to and from said recording  
20 medium, wherein

a face of said flying head slider, which faces said  
storage medium, comprises three types of surfaces, which are  
a positive pressure generating surface; a step that has a lower  
height than said positive pressure generating surface; and  
25 a recess that has a lower height than said step, wherein

said positive pressure generating surface comprises:

a U-shaped leading pad that comprises a projection  
on an air inflow side and is positioned at a front part  
of said slider;

30 two side pads that are positioned behind said  
leading pad and to the right and the left side; and

a center pad that comprises a recess on the air inflow side and is positioned between said two side pads and behind said leading pad;

said step comprises:

5 a leading step that extends from a front edge of said leading pad to a front edge of said slider;

two side steps that extend from the behind of said leading pad and to the right and the left and to connect to said two side pads, respectively; and

10 a center step that comprises a projection on the air inflow side and extends forward from a front edge of said center pad;

said recess is formed at the peripheries of said center pad and said of center step, which are surrounded by said leading pad and said side steps;

15 said side steps extend from side parts of said side pads to the side edges of said slider; form a width of said leading pad narrower than a total width of said slider; said leading step and said side steps are joined at the side parts of said slider and extend to the side edges of said slider;

said side steps are wider at the rear;

the rear edge of said center pad are positioned further behind the rear edges of said side pads; and

25 a head is positioned near the rear edge of said center pad.

10. The disk storage apparatus of Claim 9, wherein said disk storage apparatus is a fixed type hard disk drive wherein said storage medium is incorporated and cannot be removed.

11. The disk storage apparatus of Claim 9, wherein said disk storage apparatus is a removable hard disk drive, wherein said storage medium is stored in a cartridge and is attached in a removable manner.

5